REMARKS

Claims 10, 11, 16, and 18 are pending in the present application. Claims 10, 11, 16, and 18 are amended herein. Reconsideration of the application is respectfully requested.

Claims 10 and 16 stand rejected under 35 U.S.C. § 112, second paragraph, as being incomplete for omitting essential structural cooperative relationships of elements. The claims have been amended for clarification only and the rejection is otherwise traversed.

The Examiner asserts that claims 10-16 are indefinite for omitting structural relationships. In support of this grounds for rejection the Examiner has cited *In re Venezia,* 530 F.2d 956, 189 USPQ 149 (CCPA 1976); and *In re Collier,* 397 F.2d 1003, 158 USPQ 266 (CCPA 1968). In the cited cases problems arise under 35 U.S.C. § 112 based on intended use and future use of a claimed ground wire and crimpable ferrule-forming member in *In re Collier,* and a splice connector having interrelated parts adapted to be assembled in the field in *In re Venezia*. It should be noted that in *In re Venezia*, the CCPA overruled the Board's decision that the kit of *Venezia* was unacceptably claimed. In the present application, the Examiner appears to object to the claim language primarily due to applicant's recitation of an atmospheric pressure vent line having one end being an open end and the other end being connected with a load lock chamber, *e.g.,* in the case of claim 10, thus the relevance of *In re Venezia* and in *In re Collier* is not clear. Claim 11, 16 and 18 further recite features, which appear to be unclear to the Examiner.

In describing the rejection, the Examiner notes that it is not clear whether the atmospheric pressure vent line is connected to anything else. The Examiner further states that the failure to positively recite elements alleged to be necessary to perform the function of maintaining the atmospheric pressure vent line substantially equal to atmospheric pressure makes the claim indefinite. It should first be noted that claims 10 and 11 have been amended to remove features including, for example that one end of the claimed atmospheric pressure vent is being substantially equal to atmospheric pressure. Instead, applicant has indicated that one end of the atmospheric pressure vent is an open end. It is respectfully submitted that it would be understood by one of ordinary skill in the art that the effect of having an *atmospheric* pressure vent being open on one end would cause the open end to vent, for example, to the atmosphere. It is respectfully submitted that no further recitation is required.

It is further submitted that applicant has adequately established the interconnection among elements sufficient to enable one of ordinary skill in the art to understand the scope of the claimed invention. It is well established that applicant need not provide all possible means for, for example, maintaining a vent pressure at atmospheric pressure *See Orthokinetics, Inc. v. Safety Travel Chairs, Inc.,* 806 F.2d 1565 at1576. Accordingly, it is respectfully submitted that one of ordinary skill in the art would understand the scope of the invention particularly given the detailed recitation of interconnection between claimed elements contrary to the Examiner's assertion that cooperative relationships are not present. Accordingly, it is respectfully submitted that the

rejection of claims 10-16 should be reconsidered and withdrawn.

The Examiner further asserts that claim 18 recites similar language. It is respectfully submitted that claim 18 contains no such recitation *e.g.,* a vent line.

As best understood, claim 16 is further rejected under 35 U.S.C. § 112, in that the specification allegedly fails to support the recitation of the second and third vacuum lines connected with the substrate processing chamber and the first vacuum line. In support of this grounds for rejection the Examiner cites Applicant's specification, *e.g.,* Figs. 1 and 2, page 8, lines 15-20; and page 24, lines 2-5. A close review of claim 16 first reveals that a second vacuum exhaust line is connected with the substrate processing chamber and the first vacuum exhaust line, and a third vacuum line is connected with the load lock chamber and the first vacuum exhaust line. A review of applicant's specification, for example, at page 9, lines 8-13 reveals that "the vacuum exhaust line 121 is connected to the vacuum exhaust line 120, and a vacuum pump 80 is connected to the vacuum exhaust line 120. One end of the vacuum exhaust line 122 is connected to in intermediate portion of the vacuum exhaust line 120, and the other end of the vacuum exhaust line 122 is connected to the reaction oven 19."

According to the above-cited description in Fig. 2, second and third vacuum exhaust lines and their connections, as recited, for example in claim 16, are definitely supported by the originally filed specification. It is respectfully submitted therefore that this ground of rejection be reconsidered and withdrawn.

Claims 10, 11, 16 and 18 stand rejected under 35 U.S.C. 103(a) as being allegedly unpatentable over Shiraiwa, US Patent No. 5/273,423. The rejection is respectfully traversed.

The Examiner asserts, in making the rejection, that Shiraiwa teaches the invention as claimed including for example a local exhaust for locally exhausting a dust-generating portion of a moving mechanism. In making this rejection the Examiner has characterized element 32 as shown in Fig. 2 and described, for example at column 2, lines 55-58 and column 7, lines 65-66 of Shiraiwa as amounting to the claimed local exhaust. We disagree with this characterization.

A close review of Shiraiwa reveals that element 32 is not a local exhaust for local exhausting a dust-generating portion of the moving mechanism. Element 32 is chamber exhaust for exhausting a load lock chamber. It should be noted that the Examiner has used element 32 in characterizing several of the claimed features, thus it is not clear how exhaust tube 32 can act in all of the claimed capacities.

A close review of Shiraiwa further reveals that exhaust tube 32 exhausts load lock chamber 8. Shiraiwa fails to teach or suggest a *local exhaust* for local exhausting a dust-generating portion of a moving mechanism. In stark contrast to Shiraiwa, the claimed invention has a local exhaust for locally exhausting a dust-generating portion of a moving mechanism disposed in a load lock chamber in addition to a chamber exhaust for exhausting the load lock chamber. Thus, it is respectfully submitted that a *prima facie* case of obviousness has not been established in that Shiraiwa fails to teach or suggest all

the claimed features. The Examiner further has asserted that applicant's functional features are irrelevant. In making this argument, as best understood, the Examiner has asserted that applicant's only distinctions over the prior art are functional. We disagree with this characterization.

It is important to note that it is well established that functional limitations in and of-themselves are not inherently improper. Notwithstanding the legitimacy of functional limitations, it should be noted that the claimed invention distinguishes over the applied art from a structural standpoint. The Examiner asserts that, for example with regard to claim 16, Shiraiwa teaches a further feature of a second exhaust line connected to a device and a first vacuum exhaust line and a third exhaust line connected to a load lock chamber "actually moving mechanism chamber device 52 end in communication with load lock chamber and the first vacuum exhaust line." In support of this assertion Fig. 2, element 32c, column 5, lines 5-9 are cited. It is further asserted that Shiraiwa discloses a second and third vacuum exhaust line connected to transfer and cassette chambers 61 and 62 respectively and a vacuum exhaust line. It is respectfully submitted that in making this rejection the Examiner has mischaracterized the features of claim 16. It is important to note that claim 16 includes a second vacuum exhaust line, which is connected with the substrate processing chamber and the first vacuum exhaust line and a third vacuum exhaust line, which is connected with the load lock chamber and the first vacuum exhaust line, which features are fully supported by the originally filed disclosure as set forth herein above. It is respectfully submitted that Shiraiwa does not teach or suggest such

structures. In accordance with the claimed invention, a single vacuum pump may be used as a vacuum pump for the local exhaust line for exhausting the inside of a load lock chamber and a reaction oven thus reducing manufacturing costs and simplifying the system. (Applicant Specification page 12, line 27 – page 13, line 5). It should be further noted that the apparatus of claim 16 further includes a second valve, provided at an intermediate portion of the third vacuum exhaust line and a valve controller, for controlling the first and second valves, the valve controller, controlling the second valve to be closed during processing of the substrate and the substrate processing chamber. Accordingly, pressure within the substrate processing chamber can be strictly controlled. (Applicant Specification page 19, line 6 – page 20, line 6).

With regard to claim 18, the Examiner asserts that Shiraiwa teaches a substrate processing apparatus as claimed, including a cover for covering a dust-generating portion of the moving mechanism. In support of this assertion Fig. 11, element 18 or flange 26 is cited. It can be easily revealed that elements 18 and 26 of figure 11 do not amount to the claimed cover for covering a dust generation portion of said moving mechanism as further describe for example on page 10, lines 17 of applicant's specification and Fig. 3 of applicant's drawings. The claimed cover is not disposed on the wafers themselves as taught in Shiraiwa, but rather on the moving block portion which is better illustrated in Fig. 2 of applicant's drawings as element no. 3. Accordingly, it can be easily seen that Shiraiwa fails to teach or suggest all the element of claim 18. Accordingly, a *prima facie* case of obviousness has not been established in that Shiraiwa fails to teach or suggest all

the claimed features as required.

It is respectfully requested that the rejection of claims 10, 11, 16, and 18 should be reconsidered and withdrawn.

CONCLUSION

It is respectfully submitted that the application is now in condition for allowance and a Notice of Allowance is earnestly solicited. If any questions remain unanswered, the Examiner is invited to contact Robert L. Scott, II, Registration No. 43,102 at (703) 205-8000 in the Washington, D.C. area.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37 C.F.R. § 1.16 or under 37 C.F.R. § 1.17; particularly, extension of time fees.

Respectfully submitted,

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VERSION WITH MARKINGS TO SHOW CHANGES

10. (Four Times Amended) A substrate processing apparatus comprising:

a substrate processing chamber for processing a substrate;

a load lock chamber;

a gas supply for supplying gas into said load lock chamber;

a chamber exhaust for exhausting said load lock chamber, said chamber exhaust including an atmospheric pressure vent line and a vacuum exhaust line, said vacuum exhaust line connected to said load lock chamber and [which is to be] connected to a vacuum pump, [pressure at] one end of said atmospheric pressure vent line being an open end [substantially equal to the atmospheric pressure] and the other end of said atmospheric pressure vent line being connected with said load lock chamber;

a moving mechanism provided in said load lock chamber for moving said substrate;

a local exhaust for locally exhausting a dust generating portion of said moving mechanism;

flow rate regulators, respectively provided in said gas supply and said local exhaust, for controlling, during movement of said substrate by said moving mechanism, an amount of gas supplied by said gas supply into said load lock chamber to be greater than an exhaust amount from said local exhaust so that the gas supplied by said gas supply is exhausted by said local exhaust and said chamber exhaust;

a first valve disposed at an intermediate portion of said vacuum exhaust line;

a second valve disposed at an intermediate portion of said atmospheric pressure vent line;

a controller, for controlling said first and second valves such that during movement of said substrate by said moving mechanism, said first valve is closed and said second valve is opened; and

a pressure detector for detecting pressure in said load lock chamber[, wherein

said first and second valves are controlled by said controller such that during movement of said substrate by said moving mechanism, said first valve is closed and said second valve is opened, and

during movement of said substrate by said moving mechanism, an amount of gas supplied by said gas supply into said load lock chamber is controlled by said flow rate regulators to be greater than an exhaust amount from said local exhaust, and the gas supplied by said gas supply is exhausted by said local exhaust and said chamber exhaust].

11. (Four Times Amended) A substrate processing apparatus comprising:

a substrate processing chamber for processing a substrate;

a load lock chamber;

a gas supply for supplying gas into said load lock chamber;

a chamber exhaust for exhausting said load lock chamber, said chamber exhaust including an atmospheric pressure vent line and a vacuum exhaust line, said vacuum exhaust line connected to said load lock chamber and [which is to be] connected to a vacuum pump, [pressure at] one end of said atmospheric pressure vent line being an open end [substantially equal to the atmospheric pressure] and the other end of said atmospheric pressure vent line being connected with said load lock chamber,

a moving mechanism provided in said load lock chamber for moving said substrate;

a local exhaust for locally exhausting a dust generating portion of said moving mechanism;

a flow rate regulator in one of said gas supply, said chamber exhaust and said local exhaust;

a first valve disposed at an intermediate portion of said vacuum exhaust line;

a second valve disposed at an intermediate portion of said atmospheric pressure vent line;

[a controller; and]

a pressure detector for detecting pressure in said load lock chamber; and

[wherein]

a controller for controlling said first and second valves such that during movement of said substrate by said moving mechanism, said first valve is closed and said second valve is opened, and for controlling said flow rate regulator n accordance with a signal from said pressure detector to keep the inside of said load lock chamber at a higher pressure level than the atmospheric pressure during movement of said substrate by said moving mechanism[, wherein

said first and second valves are controlled by said controller such that during movement of said substrate by said moving mechanism, said first valve is closed and said second valve is opened, and

during movement of said substrate by said moving mechanism, said controller controls said flow rate regulator in accordance with a signal from said pressure detector to keep the inside of said load lock chamber at a higher pressure level than the atmospheric pressure].

16. (Thrice Amended) A substrate processing apparatus comprising:

a substrate processing chamber for processing a substrate;

a load lock chamber;

a gas supply for supplying gas into said load lock chamber;

a chamber exhaust connected with said load lock chamber for exhausting said load lock chamber;

a moving mechanism provided within said load lock chamber for moving said substrate;

a first vacuum exhaust line which is to be connected to a vacuum pump;

a second vacuum exhaust line which is connected with said substrate processing chamber and said first vacuum exhaust line;

a third vacuum exhaust line which is connected with said load lock chamber and said first vacuum exhaust line,

a local exhaust[, connected with said first vacuum exhaust line and not connected with said load lock chamber,] for locally exhausting a dust generating portion of said moving mechanism, one end of said local exhaust being connected with said first vacuum exhaust line and the other end of said local exhaust being in proximity to the dust generating portion;

a first valve connected to an intermediate portion of said local exhaust;

a second valve provided at an intermediate portion of said third vacuum exhaust line; and

a valve controller for [capable of] controlling said first and second valves[; wherein

during processing of said substrate in said substrate processing chamber], said valve controller controlling [controls] said second valve to be closed during processing of said substrate in said substrate processing chamber.

18. (Five Times Amended) A substrate processing apparatus comprising:

a substrate processing chamber for processing a substrate;

a load lock chamber;

a gas supply for supplying gas into said load lock chamber;

a chamber exhaust for exhausting said load lock chamber;

a moving mechanism provided in said load lock chamber for moving said substrate;

a cover for covering a dust generation portion of said moving mechanism;

a local exhaust for locally exhausting a dust generating portion of said moving mechanism;

a flow rate regulator in one of said gas supply, said chamber exhaust and said local exhaust;

a partition plate provided in said load lock chamber for partitioning said load lock chamber into a first region in which said substrate is moved and a second region in which said moving mechanism is positioned; and

a slit provided in said partition plate, wherein

said gas supply is connected with said load lock chamber at the first region of said load lock chamber in which said substrate moves,

said chamber exhaust is connected with said load lock chamber at the second region of said load lock chamber in which said moving mechanism is provided,

said local exhaust being connected to a space covered by said cover, said chamber

exhaust being connected to said space, and

gas supplied by said gas supply into the first region in which said substrate is moved is made to flow into the second region in which said moving mechanism is positioned, and [them] then to flow into said chamber exhaust and said local exhaust.